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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGO, HUYEN LE

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06-30-2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,755

Applicant(s)

HIGASHI, KENSAKU

Examiner

Julie-Huyen L. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1 ☐ Certified copies of the priority documents have been received.
- 2 ☐ Certified copies of the priority documents have been received in Application No. ____.
- 3 ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), which paper has been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed April 11, 2002 (paper no. 4) has been considered.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

Claims 7 and 8 are objected to because claims 7 and 8 are process claims, which cannot depend on the device claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, "the single-layer powder coating formed in the late step" lacks antecedence.

In claim 8, the recitation calling for "the binder layer having tackiness is bought into contact with the power particles and a medium vibrated in a container" is unclear. Also it is unclear what Applicant referred to as "them" that are fixed.

In claim 1, the recitation in lines 3-4 "a single-layer powder coating provided on the substrate by laying powder particles in a state of a mono particle layer on the substrate to fix them," in lines 3-4, is unclear of how to "fix them" and what considered to be "them". The power particles coating on the substrate cannot be fixed without the binder layer, which recites in claim 6. It appears that the binder layer needed to be recited in claim 1.

In claims 9 and 10, it is unclear what considered to be "them" that are to be fixed. Also the power particles coating on the substrate cannot be fixed without the binder layer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuo et al. (US5714327).

With respect to claims 1-6, Kuo et al. teach (Figs. 4a-b and 5) forming a light reflecting plate comprising:

(Claim 1)

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- a substrate,
- a single-layer powder coating 32 or 53/54 provided on the substrate by laying powder particles in a state of a mono particle layer on the substrate to fix them,
- a thin metal film 55 laminated on the single-layer powder coating.

wherein

(Claim 2)

- the powder particles are spherical fine particles having a particle diameter of 0.1 to 20 μ m, which covers range of 1 to 20 μ m (col. 4 lines 7-8)

(Claim 3)

- the substrate is in the form of a plate

(Claim 4)

- the substrate and/or the (glass) powder particles have light transmission property (col. 4 lines 23-26)

(Claim 5)

- the thin metal film is formed from any one metal selected from the group consisting of gold, silver, aluminum and nickel (col. 4 lines 19-20)

(Claim 6)

- the powder particles are fixed by a binder layer 42/52 provided on the substrate (col. 4 lines 33-44)

With respect to claim 7, Kuo et al. teach (Figs. 4a-b and 5) a process for producing the light reflecting plate comprising:

- a step of providing a binder layer 42/52 having tackiness on a substrate 41/51,
- a step of laying powder particles 32/53&54 in a state of a monoparticle layer on the binder layer having tackiness to fix them with raising temperature,
- a step of laminating a thin metal film 55 on the single-layer powder coating formed in the late step.

(Claim 8)

wherein the substrate provided with the binder layer having tackiness (adhesion) is brought into contact with the powder particles 32/53&54 by vibrating the power particles in the container 43, thereby laying the powder particles in a state of a monoparticle layer on the binder layer having tackiness to fix them.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by OBARA et al. (JP404267220A).

OBARA et al. teach (Fig. 1) liquid crystal display device comprising:

- a liquid crystal cell with a liquid crystal layer 8 held between a pair of transparent substrates 2, 3 opposed to each other and each having at least a display electrode on the internal side thereof,
- a light reflecting layer 7 reflecting incident light, which is provided on the side of one display electrode within the liquid crystal cell,

wherein the light-reflecting layer comprises:

- a substrate 3,
- a single-layer powder 6 coating formed on the substrate by laying powder particles in a state of a monoparticle layer on the substrate to fix them,
- a thin metal film 7 laminated on the single-layer powder coating

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over OBARA et al. as applied to claim 10 above, and further in view of KAWAMOTO et al. (JP411002709A).

OBARA et al. teach forming a liquid crystal display device (figures a1 and 2) comprising:

- a liquid crystal cell with a liquid crystal layer held between a pair of transparent substrates opposed to each other and each having at least a display electrode on the internal side thereof
- a light reflecting plate reflecting incident light

However, OBARA et al. fail to disclose that the light reflecting plate is provided on the external side of one of the transparent substrates.

KAWAMOTO et al. (JP411002709A) teach providing a light reflecting plate on the external side of a transparent substrate 70 for giving a wide visual angle when it is used for a backlight jointly-use with a reflection liquid crystal display device by making a light transmissivity in a specific wavelength with a specific range.

wherein the light reflecting plate comprises:

- a substrate 70,
- a single-layer powder 60 coating provided on the substrate by laying powder particles in a state of a monoparticle layer on the substrate to fix them, and
- a thin metal film 50 laminated on the single-layer powder coating.

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to form the light reflecting plate in OBARA et al LCD device on the external side of one of the transparent substrates for giving a wide visual angle when it is used for a backlight jointly-use with a reflection liquid crystal display device by making a light transmissivity in a specific wavelength with a specific range, as taught by KAWAMOTO et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Adachi et al. (US5548425A) disclose a reflective LCD having a resin-diffuser with dispersed metal oxide particles between a substrate and pixel electrodes or integral with the pixel electrodes.

Tsuda et al. (US5936688A) disclose a method for fabricating a reflector includes the steps of: performing a photolithography process and a heat treatment so as to form the convex/concave portions; and forming the thin reflective film over the convex/concave portions, wherein the method further comprises the step of applying an organic insulating resin mixed with minute particles onto the substrate.

Uchiya et al. (US6579606B1) disclose a reflection sheet comprising a film support having a thickness of 25 to 50 μ m and, applied on a surface of the support, a reflective paint coat comprised of a mixture of a resin binder of a (meth) acrylate copolymer with a small particle balloon having a particle diameter of 0.05 to 10 μ m and an inside empty diameter to particle diameter ratio of 0.2 to 0.9.

Contact Information

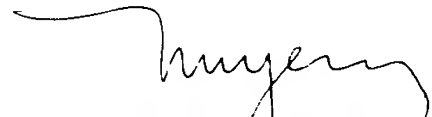
Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (703) 305-3508. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (703) 305-3492.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

June 26, 2003



Julie-Huyen L. Ngo
Patent Examiner
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